

REMARKS/ARGUMENTS

Interview Summary

An telephonic interview was conducted with the Examiner on September 25, 2006. Various aspects of the Examiner's remarks in the Office Action dated June 29, 2006 and potential claim amendments that could overcome the Examiner cited art were discussed during the interview. Applicants reiterated to the Examiner that any potential claim amendments discussed during the interview did not imply that Applicants agreed with the remarks provided by the Examiner in the Office Action dated June 29, 2006 but were intended to expedite the prosecution of the Application. Based on the discussions conducted with the Examiner, Applicants believe that the amended independent claims of the current response are likely to place the claims in a condition for allowance.

Double Patenting

A terminal disclaimer is being submitted with the amendment to overcome the double patenting rejection of claims 1-18.

Specification

The title has been changed to "METHOD, SYSTEM, AND ARTICLE OF MANUFACTURE FOR GENERATING A COPY OF A FIRST AND A SECOND SET OF VOLUMES IN A THIRD SET OF VOLUMES".

Claim rejections under 35 U.S.C. 112

The term "FlashCopy" has been deleted from claims 6, 12, 18, and applicants submit that the deletions overcome the Examiner's rejections under 35 U.S.C. 112,

Claim rejections under 35 U.S.C. 101

While Applicants do not agree with the rejection of claims 13-18 under 35 U.S.C. 101 in order to expedite prosecution the Applicants have amended independent claim 13, such that in the amended independent claim 13 the article of manufacture comprises a computer readable storage medium. Applicants submit that the amendment to independent claim 13 overcomes the

35 U.S.C. 101 based rejections of claims 13-18, where claims 14-18 depend on independent claim 13.

Claim rejections under 35 U.S.C. 102 and 103

The Examiner has rejected claims 1-4, 6-10, 12-16, and 18 under 35 U.S.C. 102(e) as being anticipated by U.S. Patent Application Publication 2005/10071372 (Bartfai). Claims 1-3, 6-9 12-15 18 have been rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent Application Publication 2003/10158869 (Micka). Claims 5, 11, and 17 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Bartfai. Claims 4, 5, 10, 11, 16, and 17 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Micka. Applicants have amended the independent claims and certain dependent claims and submit that the amended pending claims 1-18 are patentable over the cited art.

STATEMENT OF COMMON OWNERSHIP [Claim Rejections under 35 U.S.C. 103(a)]

Applicants submit that the Bartfai reference cannot be used for 35 U.S.C. 103(a) based rejections as the pending Application 10/811,573 and Bartfai (U.S. Patent Application Publication 2005/10071372) were, at the time the invention of Application 10/811,573 was made, owned by International Business Machines Corporation or subject to an obligation of assignment to International Business Machines Corporation.

“Appendix 1” includes a document related to the assignment of Bartfai (U.S. Patent Application Publication 2005/10071372).

“Appendix 2” includes a document related to the assignment of the pending application 10/811,573.

Applicants submit that Barfai qualifies as prior art only under 102(e), and according to 103(c) “subject matter developed by another person, which qualifies as prior art only under one or more subsections (e), (f) and (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. Applicants submit that the pending Application 10/811,573 and Barfai (U.S. Patent

Application Publication 2005/10071372) were, at the time the invention of Application 10/811,573 was made, owned by International Business Machines Corporation or subject to an obligation of assignment to International Business Machines Corporation.

For the above reasons, the Bartfai reference may not be used for 35 U.S.C. 103(a) based rejections of any of the pending claims.

Amended independent claims 1, 7, 13

Amended claims 1, 7, 13 require:

receiving, from a host, a request including an indicator at a first storage control unit having a first set of volumes, wherein the first storage control unit is coupled via a link to a second storage control unit having a second set of volumes that are peer-to-peer copies of the first set of volumes, and wherein the second storage control unit does not have an active link for receiving commands from a device other than the first storage control unit;

determining, by processing the indicator included in the request, at the first storage control unit, whether to transmit a command from the first storage control unit to the second storage control unit to generate a copy of the second set of volumes to a third set of volumes at the second storage control unit;

transmitting the command, via the link, from the first storage control unit to the second storage control unit, in response to determining by processing the indicator that the command is to be transmitted, to the second storage control unit;

copying, at the second storage control unit, the second set of volumes to the third set of volumes, in response to receiving the transmitted command at the second storage control unit from the first storage control unit; and

performing operations at the first storage control unit, and not transmitting the command from the first storage control unit to the second storage control unit to generate a copy of the second set of volumes to the third set of volumes at the second storage control unit, in response to determining by processing the indicator that the command is not to be transmitted, to the second storage control unit.

No new matter has been added while amending independent claims 1, 7, 13 and the new requirements may be found in the at least FIGs. 3 and 4 and the original claims 1-6. Applicants

submit that nowhere does the Examiner cited Bartfai teach or disclose, or the Examiner cited Micka teach or suggest, the claim requirements of amended independent claims 1, 7, 13.

The Examiner cited Micka discusses maintaining volumes corresponding to a remote flashcopy pair in a remote recovery site, and maintaining volumes at a primary site (FIG. 1 of the Examiner cited Micka). The Examiner cited Bartfai discusses a two-phase process FlashCopy operation (Abstract of the Examiner cited Bartfai). Nowhere does the Examiner cited Micka teach or suggest, or the Examiner cited Bartfai teach or disclose the claim requirements of:

determining, by processing the indicator included in the request, at the first storage control unit, whether to transmit a command from the first storage control unit to the second storage control unit to generate a copy of the second set of volumes to a third set of volumes at the second storage control unit;

transmitting the command, via the link, from the first storage control unit to the second storage control unit, in response to determining by processing the indicator that the command is to be transmitted, to the second storage control unit;

copying, at the second storage control unit, the second set of volumes to the third set of volumes, in response to receiving the transmitted command at the second storage control unit from the first storage control unit; and

performing operations at the first storage control unit, and not transmitting the command from the first storage control unit to the second storage control unit to generate a copy of the second set of volumes to the third set of volumes at the second storage control unit, in response to determining by processing the indicator that the command is not to be transmitted, to the second storage control unit.

In particular, nowhere does the Examiner cited Micka teach or suggest, or the Examiner cited Bartfai teach or disclose the claimed operations performed in response to processing the indicator as required by the claims.

For the above reasons, the amended independent claims are patentable over the Examiner cited art.

Dependent Claims 2-6, 8-12, 14-18

The Examiner has also rejected or objected to dependent pending claims 2-6, 8-12, 14-18 which are patentable over the Examiner cited art because they depend, directly or indirectly,

from independent claims 1, 7, 13 which are patentable over the Examiner cited art for the reasons discussed above. Moreover, the following of these claims provide additional grounds of patentability over the Examiner cited art for the reasons discussed below

Amended claims 4, 10, 16

Amended claim 4 depends on claim 1, wherein the indicator is a flag, wherein processing the indicator further comprises determining whether the flag is set to on, and wherein if the flag is set to on then the command is to be transmitted from the first storage unit to the second storage control unit.

The added requirements of claims 4, 10, 16 may be found in at least Figs. 3 and 4 of the Application, and no new matter has been added.

Nowhere does the Examiner cited Micka teach or suggest, or the Examiner cited Bartfai teach or disclose the claim requirements that the indicator is a flag, wherein processing the indicator further comprises determining whether the flag is set to on, and wherein if the flag is set to on then the command is to be transmitted from the first storage unit to the second storage control unit.

For the above reasons, the amended claims 4, 10, 16 are patentable over the Examiner cited art.

Claims 2, 8, 14

Amended claims 2 depends on claim 4, wherein on completion of the copying, at the second storage control unit, of the second set of volumes to the third set of volumes, data in the first set of volumes is consistent at a point in time with data in both the second set of volumes and the third set of volumes and nowhere are these claim requirements taught or suggested by the Examiner cited Micka or taught and disclosed by the Examiner cited Bartfai in combination with the claims requirements of claims 1 and 4.

For the above reasons, the amended claims 2, 8, 14 are patentable over the Examiner cited art.

Claims 3, 9, 15

Claim 3 depends on claim 2, wherein copying the second set of volumes to the third set of volumes is performed by a point-in-time copy operation.

Nowhere does the Examiner cited Micka teach or suggest, or the Examiner cited Bartfai teach or disclose the claim requirements of copying the second set of volumes to the third set of volumes being performed by a point-in-time copy operation, in combination with the claim requirements of claims 1, 4, and 2.

For the above reasons, the amended claims 3, 9, 15 are patentable over the Examiner cited art.

Claims 5, 11, 17

Claim 5 depends on claim 4, wherein the second set of volumes that are peer-to-peer copies of the first set of volumes are generated synchronously from the first set of volumes, and wherein the data in the first set of volumes is consistent with the data in the second set of volumes and nowhere does the Examiner cited Micka teach or suggest the claim requirements in combination with the claim requirements of claims 1 and 4.

In particular in the Examiner cited Micka the transmission between the primary site and the secondary site is asynchronous and if the Examiner cited Micka is modified to use synchronous transmission between the primary site and the secondary site, then the modification would cause the Examiner cited Micka to become inoperable because the cited Micka requires the “updates at the primary volume of the primary site” to be “decoupled from transmission of the one or more incremental database updates to the remote volumes at the remote site” (Cited Micka: Abstract). The decoupling mentioned in the cited Mecka would not be possible if synchronous transmission is used. Therefore, the Examiner cited Micka does not teach or suggest the claim requirements that the second set of volumes that are peer-to-peer copies of the first set of volumes are generated synchronously from the first set of volumes, and wherein the data in the first set of volumes is consistent with the data in the second set of volumes.

The Examiner cited Bartfai cannot be used for 103(a) based rejection of claims 5, 11, 17 as mentioned earlier in the section entitled “Statement of common ownership”.

For the above reasons, the amended claims 5, 11, 17 are patentable over the Examiner cited art.

Amended claims 6, 12, 18

Claim 6 depends on claim 4, wherein the request is a command for point-in-time copying of data the method further comprising:

signalling the host that the copying, at the second storage control unit, of the second set of volumes to the third set of volumes has been completed.

Nowhere does the Examiner cited Micka teach or suggest or the Examiner cited Bartfai teach or disclose these claim requirements in combination with the claim requirements of claims 1 and 4.

In particular, while the Examiner cited Micka and the Examiner cited Bartfai may use Flashcopy commands, nowhere does the Examiner cited Micka teach or suggest, or the Examiner cited Bartfai teach or disclose the claim requirements of signalling the host that the copying, at the second storage control unit, of the second set of volumes to the third set of volumes has been completed because in the Examiner cited Bartfai or the Examiner cited Micka the copying from the first storage control unit to the second storage control unit is asynchronous and no signaling of completion to the host is performed as required by the claims. Also, if the Examiner cited Micka if modified to use synchronous transmission between the primary site and the secondary site, then the modification would cause the Examiner cited Micka to become inoperable because the cite Micka requires the “updates at the primary volume of the primary site” to be “decoupled from transmission of the one or more incremental database updates to the remote volumes at the remote site” (Abstract: cited Micka). The decoupling mentioned in the Examiner cited Mecka would not be possible if synchronous transmission is used.

For the above reasons, the amended claims 6, 12, 18 are patentable over the Examiner cited art.

Conclusion

For all the above reasons, Applicant submits that the pending claims 1-18 are patentable over the art of record. Applicants have not added any claims. Nonetheless, should any additional fees be required, please charge Deposit Account No. 09-0449.

The attorney of record invites the Examiner to contact him at (310) 553-7977 if the Examiner believes such contact would advance the prosecution of the case.

Amdt. dated September 28, 2006
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